and 265 (for hazardous waste treatment, storage and disposal facilities) do not apply to generators who send their wastes off-site within the 90- or 180-day window, whichever is applicable.

Hazardous waste generators that do not meet the conditions for conditionally exempt small quantity generators must (among other requirements such as record keeping and reporting):

- Obtain a generator identification number;
- Store and ship hazardous waste in suitable containers or tanks (for storage only);
- Manifest the waste properly;
- Maintain copies of the manifest, a shipment log covering all hazardous waste shipments, and test records;
- Comply with applicable land disposal restriction requirements; and
- Report releases or threats of releases of hazardous waste.

## 2.6 SAFETY HAZARD BY FORMULATION

Table 2-8 contains Safety Hazard Factors for the 36 blanket wash formulations and the baseline used in the lithography industry. There are four Safety Hazard Factors addressed in this table: reactivity, flammability, ignitability, and corrosivity. As was described in Section 2.2 Chemical Information for the individual chemicals used in the blanket wash formulations, they were derived as follows.

Where applicable, the reactivity and flammability values were extracted directly from section one of the blanket wash formulation's Material Safety Data Sheets (MSDSs). This section contains the National Fire Protection Association (NFPA) values on both reactivity and flammability. For reactivity, NFPA ranks materials on a scale of 0 through 4:

0 - materials that are normally stable, even under fire exposure conditions, and that do not react with water; normal fire fighting procedures may be used.

1 - materials that are normally stable, but may become unstable at elevated temperatures and pressures and materials that will react with water with some release of energy, but not violently; fires involving these materials should be approached with caution.

2 - materials that are normally unstable and readily undergo violent chemical change, but are not capable of detonation; this includes materials that can rapidly release energy, materials that can undergo violent chemical changes at high temperatures and pressures, and materials that react violently with water. In advanced or massive fires involving these materials, fire fighting should be done from a safe distance of from a protected location.

3 - materials that, in themselves, are capable of detonation, explosive decomposition, or explosive reaction, but require a strong initiating source or heating under confinement; fires involving these materials should be fought from a protected location.

4 - materials that, in themselves, are readily capable of detonation, explosive decomposition, or explosive reaction at normal temperatures and pressures. If a

material having this Reactivity Hazard Rating is involved in a fire, the area should be immediately evacuated.

For flammability, NFPA ranks materials also on a scale of 0 through 4:

0 - any material that will not burn.

1 - materials that must be preheated before ignition will occur and whose flash point exceeds 200°F (93.4°C), as well as most ordinary combustible materials.

2 - materials that must be moderately heated before ignition will occur and that readily give off ignitible vapors.

3 - Flammable liquids and materials that can be easily ignited under almost all normal temperature conditions. Water may be ineffective in controlling or extinguishing fires in such materials.

4 - includes flammable gases, pyrophoric liquids, and flammable liquids. The preferred method of fire attack is to stop the flow of material or to protect exposures while allowing the fire to burn itself out.

For formulations whose MSDs did not contain NFPA rankings, no reactivity or flammability values were assigned. However, please note the following exceptions. For Blanket Wash Formulation #19, NFPA reactivity and flammability values for a major chemical constituent, dipropylene glycol butyl ether, have been included in the table. In addition, for Blanket Wash Formulations #32, #36, and #37, a reactivity designation of "Y" has been given. Based on product composition, it has been determined that these blanket wash formulations are reactive, though no NFPA value has been listed in their MSDSs.

For ignitability, the formulations have been classified as either ignitable, "Y" or not ignitable, "N". Ignitability has been determined based on the flash point of the formulation, as outlined in 40 CFR (Protection of Environment, RCRA), Part 261, Identification and Listing of Hazardous Waste, §261.21, Characteristic of Ignitability. Under this standard, a chemical is considered ignitable if it "is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume and has a flash point less than 60°C (140°F) as determined by a Pensky-Martens Closed Cup Tester...a Setaflash Closed Cup Tester...or an equivalent test method." The flash points for these formulations have been determined by the Graphic Arts Technical Foundation, an independent testing laboratory.

For corrosivity, the formulations have been classified as either corrosive, "Y" or not corrosive, "N". Corrosivity for these product formulations has been determined based on the pH of the product as outlined in 40 CFR (Protection of Environment, RCRA), Part 261, Identification and Listing of Hazardous Waste, §261.22, Characteristic of Corrosivity. According to this standard, a chemical is corrosive if it "is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5." As with the flash points, the pH of the various blanket wash formulations have been determined by the Graphic Arts Technical Foundation.

**Table 2-8. Safety Hazard Factors for Blanket Wash Formulations [1]**

| Formulation Number | Reactivity | Flammability | Ignitability | Corrosivity |
|---|---|---|---|---|
| 1 | 0 | 0 | N | N |
| 3 | | | Y | N |
| 4 | | | Y | N |
| 5 | | | Y | N |
| 6 | | | N | N |
| 7 | 0 | 2 | N | N |
| 8 | | | Y | N |
| 9 | | | N | N |
| 10 | | | N | N |
| 11 | | | N | N |
| 12 | | | Y | N |
| 14 | | | N | N |
| 16 | 0 | 2 | N | N |
| 17 | | | N | N |
| 18 | | | N | N |
| 19 | 0[2] | 2[2] | N | N |
| 20 | | | N | N |
| 21 | | | Y | N |
| 22 | | | N | N |
| 23 | | | Y | N |
| 24 | | | Y | N |
| 25 | | | N | N |
| 26 | | | N | N |
| 27 | 0 | 2 | N | N |
| 28 | 0 | 2 | Y | N |
| 29 | | | N | N |
| 30 | | | Y | N |
| 31 | | | Y | N |
| 32 | Y | | N | N |
| 33 | | | Y | N |
| 34 | | | Y | N |
| 35 | | | Y | N |
| 36 | Y | | N | N |
| 37 | Y | | Y | N |
| 38 | | | N | N |

| Formulation Number | Reactivity | Flammability | Ignitability | Corrosivity |
|---|---|---|---|---|
| 39 | | | N | N |
| 40 | | | N | N |

[1]A blank space in this table indicates that there was not enough information available to develop a Safety Hazard Factor ranking.
[2]Reactivity and flammability data values are for dipropylene glycol butoxy ether.

## References

1. The Hazardous Substances Data Bank (HSDB), developed and maintained by: The National Library of Medicine, Washington, D.C.

2. The Physical/Chemical Property Database (PHYSPROP) and the Environmental Fate Data Base (EFDB), both of which were developed and maintained by: Syracuse Research Corp. (SRC), Environmental Science Center, Merrill Lane, Syracuse, New York.

3. Budavari, S., ed. 1989. The Merck Index, 11th ed. Merck & Co., Inc., Rahway, NJ.

4. Lewis, R.J., ed. 1993. Hawley's Condensed Chemical Dictionary, 12th ed. Van Nostrand Reinhold Co., New York.

5. Lyman, W.J., et al. 1990. Handbook of Chemical Property Estimation Methods.

6. Beilstein on-line data base. Undated.

7. Aldrich Chemical Company, Inc. 1990. Catalog Handbook of Fine Chemicals.

8. U.S. Department of Health and Human Service. 1985. CHEMLINE. Chemical Dictionary Online.

9. Chemical Abstracts Systems. 1994.

10. Buckingham, J. 1982. Dictionary of Organic Compounds.

11. CRC. 1993. Handbook of Chemistry and Physics.

12. Sax, N.I., and R.J. Lewis. 1987. Hazardous Chemicals Desk Reference.

13. U.S. EPA. Integrated Risk Information System (IRIS). 1995.

14. Perry's Chemical Engineering Handbook. 1984.

15. Ullman, F. 1985. Ullman's Encyclopedia of Industrial Chemistry.

16. Verschueren, K. 1977. Handbook of Environmental Data on Organic Chemicals.